The Week In Engineering and Construction

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Navy enlisting construction forces for combat zone work

Original limited program enlarged by organization of regular construction regiments that may handle all work outside of permanent establishments

The Navy is expanding its original limited program of organizing its own construction forces to the point where it expects soon to handle all work in combat zones without use of contractors. Eventually all work outside the continental United States, except that at the large permanent bases, may be handled by Navy construction regiments.

Last week a special construction training center was commissioned at Norfolk, Va., and now plans are afoot to organize a number of construction regiments of three thousand men each.

Navy did all work by contract

Hitherto the Bureau of Yards and Docks has been almost exclusively a contract-letting unit, and has had no construction forces of its own equivalent to the Army's engineer regiments. Last fall, however, one company of 99 men was formed and in December five additional companies were organized—primarily as administrative units for the officers in charge of contract jobs. Now the conception has changed, and the construction regiments are intended to take on construction jobs by themselves.

Known as "Seabees"

The construction company as organized by the Navy consists of 227 men headed by a lieutenant. Four companies, plus a smaller headquarters company of cooks, pharmacists, and the like, make up a battalion. Headed by a lieutenant-commander, the battalion is the basic unit. In fact the construction men get their name of "Seabees" from the initials of construction and battalion. Three battalions make up a regiment, but this is mainly a paper unit, and ordinarily the new construction forces will be scattered into battalions.

Similar to army engineers

Although the "Seabees" are expected to be able to fight on occasion, they do not have specific fighting duties such as the demolition of fortifications and removal of land mines that the army engineers undertake. Often they might have to work under fire, as for instance in the preparation of a newly-captured beach-head for use as a base.

The Navy is now seeking enlistments in the "Seabees" from among skilled construction men. Ratings to be filled range from seaman second class to chief petty officer and, in a few cases, warrant officer.

Appropriation includes billions for Army work

More than five billion dollars for Army construction is included in the sixth supplemental appropriation passed by the House last week. Though detailed breakdowns are withheld for reasons of military secrecy, it appears that the largest single classification is housing for the expanded airforce, which is scheduled to reach 2,000,000 men next year. This includes much work overseas and in Alaska as well as in this country. About $900,000,000 is provided for cantonments to house ground troops. Some of this housing is of the cantonment type, costing about $1,250 a man, and some of the theatre-of-operations type costing about $1,000.

For continuation of Army work at the Atlantic bases and of military installations overseas, $866,000,000 is provided. A program of munitions storage facilities

Seek domestic raw material sources

With the loss of trans-Pacific sources of supply and difficulties of transportation forcing an ever increasing scarcity on U. S. war production machinery, many organizations in the country were busy last week attempting to develop at once domestic sources of vital materials.

The Freeport Sulphur Co., of Freeport, Tex., announced that its metallurgists have been operating a test plant near Freeport and another in Cuba for several months in an attempt to develop a new process for extracting nickel from a vast deposit of low grade nickel ore in Cuba. The company said that its experiments have brought highly satisfactory results and that armor plate made from the metal under the new process has recently passed ballistic tests. To produce this new processed metal in large quantities, the Sulphur Co. has incorporated a new subsidiary, the Nicaro Nickel Co., and has announced the receipt of a loan to finance construction of a $20,000,000 plant for processing.

The Cuban deposits, said to be "enormous," were discovered many years ago, but metallurgical problems involved in extracting the nickel from the complex mineral structure have prohibited use of the deposit until this time.

Active mining of domestic bauxite has been started by a subsidiary of the Reynolds Metals Co. Bauxite from Arkansas deposits, now being mined by the Reynolds Ore Co., will be shipped to a plant in Alabama for conversion into aluminum. Original shipments came from the Netherlands East Indies, but the war in the Pacific has forced contracts to be made for bauxite from Surinam, Netherlands colony in Central America, and the development of the Arkansas field. New uses for large deposits of coal near Bridgeport, Tex., will make possible the construction of a chemical plant near that town to extract, among other things, benzol, toluol, napthalene, phenol, ammonia aqua, pyridine, creosote oil, light oil and pitch compounds.

Meanwhile, University of Navada officials have reported the discovery of a tin deposit in that state, although no details were available as to size or possibilities of recovery. In a recent talk before the Cornell Club of Pittsburgh, John L. Collyer, president of the B. F. Goodrich Rubber Co., told his listeners that the United States must make every possible use of scrap rubber which may be reclaimed because, he said, U. S. production of synthetic rubber will not reach 400,000 tons—estimated as requirements by Washington authorities—until 1944.

will take about $450,000,000.

An amendment to the bill, limiting profits of contractors to 6 percent of the contract cost, was inserted by the House. It provides that before final payment is made on any contract, the contract shall be audited and the amount re-negotiated to bring the profit within the limit. No definition of profit is provided.

Other funds of a construction nature in the bill include a contract authorization of $20,000,000 for construction of access roads. Projects to use more than $120,000,000 of the $125,000,000 previously provided for this purpose already have been approved by the Army and Navy. Also included is $12,500,000 for the Public Buildings Administration for protective measures on public buildings.

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Jersey highway bureau marks 25th anniversary

The New Jersey State Highway Department celebrated its 25th anniversary Mar. 30. without ceremony.

A history of the department revealed that it was originally administered by a state highway commission of eight members, with the governor as an ex-officio member entitled to a vote in case of a tie. Gen. George W. Goethels, builder of the Panama Canal, was named state engineer under the 1917 act which created the department, and was made adviser and supervisor of the department.

The original state highway system embraced 15 routes comprising 679 miles. From a construction program of 12 miles in its first year of operation, at a cost of $670,000, the system has been expanded into a network of 1,680 miles.

House favors Interior department funds

An interior department appropriation providing $101,424,000 for public works was approved by a House committee last week. It includes $77,268,000 for reclamation—about 20 per cent less than the current fiscal year. For the Bonneville project $21,707,000 is provided, and the bill is rounded out with two million for Indian Service projects and a half million for construction of roads and trails in National Parks.

In handling the reclamation money, the committee modified the budget bureau's concentration on power to the exclusion of irrigation. The committee inserted an unbudgeted million to extend the Coachella branch of the All-American canal. It also added another million to complete the Contra-Costa canal and recommended early construction of the Friant-Kern canal.

The committee struck out a budget recommendation of $15,000,000 for transmission lines and initial construction of a steam plant in connection with the Central Valley project, leaving open the question of eventual distribution of Central Valley power. For Central Valley, $34,840,000 is provided, bringing to about $146,000,000 the appropriations to date for this $265,000,000 project.

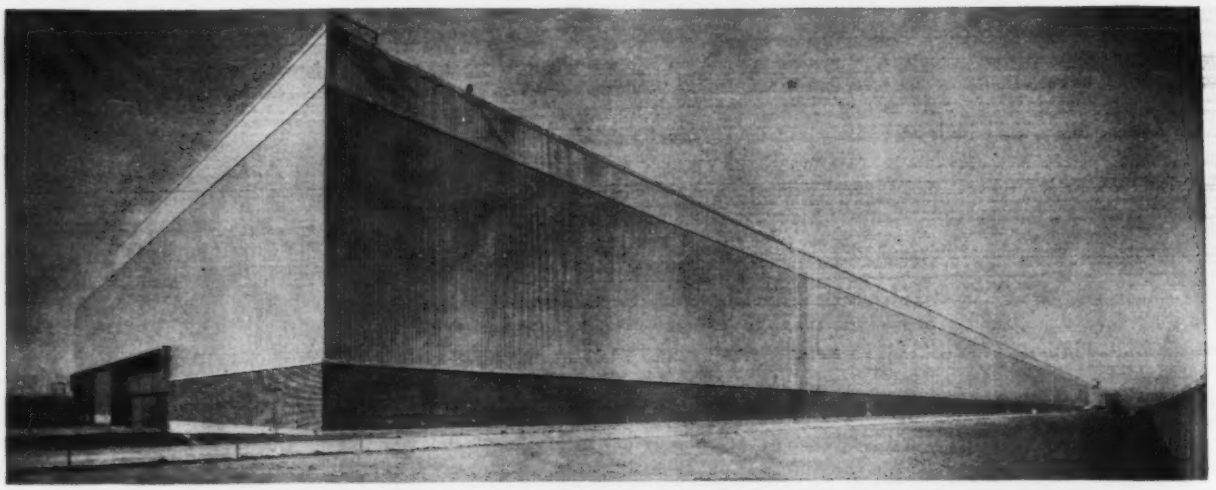
For continuation of Grand Coulee, $19,175,000 is appropriated. For Boulder Dam, $5,000,000 is included, $4,000,000 for Davis Dam, $4,830,000 for the Colorado-Big Thompson work, $2,250,000 for the Boise project, $1,940,000 for Parker Dam.

Ask pipeline permit

The Independent Natural Gas Co., a wholly-owned subsidiary of Phillips Petroleum Co., has applied to the Federal Power Commission for a certificate of public convenience and necessity to permit construction and operation of a 22-in. natural gas pipeline from Ray, Texas, to Milwaukee, Wis. The line, which would stretch a total distance of about 877 miles, will deliver gas at wholesale to ten public utilities operating in southern and eastern Wisconsin, for resale to the public. The application also proposes construction of necessary and appropriate lateral lines, to serve the various markets, cities and communities within its proposed service area.

Talks on bomb-resistant shelter construction set

Engineers and architects faced with the problem of designing bomb resistant shelters, and of providing protection for industrial plants and equipment, will attend a series of lectures conducted by the Department of Architecture at Pratt Institute, Brooklyn, N. Y., beginning April 6. Lecturers will include James C. Boudreau, director of the Art School; C. C. Briggs, head of the department of architecture, and William J. McGuinness, engineer and coordinator of bombardment protection courses. There will be no fee charged for the course, sponsored by the U.S. Office of Education.



Windowless, air conditioned assembly plant completed in record time

Engineers and construction workers who had a part in the design and building of the above windowless, air conditioned bomber assembly plant, have received merit awards from The Austin Company engineers and builders, for their part in speeding completion of the structure. The building was started April 18, 1941. Totally inclosed by roof and walls of glass wool and steel, the building is taller than the average six-story apartment house and would extend nearly a dozen blocks in the average American city.

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Canadian legislation permits drafting of engineers for war production work

Order-in-council covers all classes of technical men in The Dominion and compels employers to release men on 30-day notice

Enabling the Canadian government to mobilize technical services for the war effort, recent legislation passed at Ottawa includes an order-in-council making all classes of engineers and technical men subject to war service upon demand.

Under provisions of this order, any person to whom the regulation applies may be requested by the Minister of Labor, acting through the Wartime Bureau of Technical Personnel, to undertake such essential work as will allow him to make his utmost contribution to the war effort. Employers are compelled to release all such men within 30 days of the written notice of such proposed change from the Minister; they may file written objections within a similar period. All employers must reinstate all men so released for special work, at the termination of his period of service, in a position and under conditions not less favorable than would have been applicable to such men had they not consented to perform special services.

The provisions of the order do not apply to the civil service of either the federal or any provincial government in Canada.

Before any employer can employ any men to whom the regulations apply, he must notify the director of the Bureau of Technical Personnel and any person to whom the order applies must also notify the Bureau before he takes employment of the special character covered by the order. If employment contracts do not receive the approval of the director of the Bureau, the reinstatement provisions do not apply. Provision is made for penalties, in the nature of fines, for failure to comply with terms of the order.

The regulations apply to seven classes of employees: (1) Engineers practicing in design, construction, manufacture, operation, or maintenance; (2) engineers and chemists who occupy executive or administrative positions in relation to technical work; (3) graduates engaged in teaching engineering or science at a university or technical college; (4) chemists, excluding pharmacists; (5) research scientists; (6) graduates in engineering or the main sciences, and members of the Engineering Institute of Canada, Canadian Institute of Chemistry, Canadian Institute of Mining and Metallurgy, and the Royal Architectural Institute of Canada, as well as the provincial professional engineering associations in eight of the nine provinces; and (7) any person, not in the above classes, "who, in the opinion of the Minister, possesses technical qualifications and skill which are needed in undertakings engaged on essential work."

Present director of the Technical Personnel Bureau is E. M. Little of Quebec who only recently was appointed to the critically important post of Director of National Selective Service of Canada. In published statements, Mr. Little has said he probably will not continue as director of the bureau, although its activities probably will come under his direction in his new post.

First apprentice group graduates under new act

At ceremonies held Mar. 14 at St. Paul, Gov. Harold E. Stassen of Minnesota presented certificates to 47 graduates who were first to complete an apprenticeship course under the new state training law. The classes graduated were plumbers and sheet metal workers, sponsored by the sheet metal and plumbing trades in St. Paul and in Minneapolis.

The new act, introduced by John F. Barrett, was put through the legislature with the backing of the state federation of labor and the Associated General Contractors of Minnesota. It is administered by the Minnesota Apprenticeship Council, under the direction of Frank G. Musula, state director of apprenticeship, with the cooperation of the state and U. S. Department of Labor, the Minnesota A.G.C., and the state industrial commission.

Shown above, left to right, are William P. Patterson of the U. S. Dept. of Labor; P. J. O'Connor, chairman of the Minnesota Industrial Commission, and Governor Stassen.

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Clark made planning head of New York plan board

Frederick P. Clark, executive and planning director of the New Hampshire State Planning and Development Commission, has been elected planning director of the Regional Planning Association, Inc., New York. He will head the research and engineering staff of the New York organization, replacing Harold M. Lewis, chief engineer of the association since 1929, who recently announced he would return to private practice. Mr. Clark, a graduate of Cornell University, in 1933, was planning engineer for the Fairfield County Planning Association in Connecticut before taking his post with the New Hampshire group, in 1936.

Mr. Lewis will continue as principal engineering consultant to the New York planning group.

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Turnpike speed limit may be cut to 60 mph

The Pennsylvania Turnpike Commission is considering changing its 70-mile-per-hour speed limit to 60 mph for the duration of the war. Commission employees are making tests on the highway to help determine a definite mileage reduction ratio.

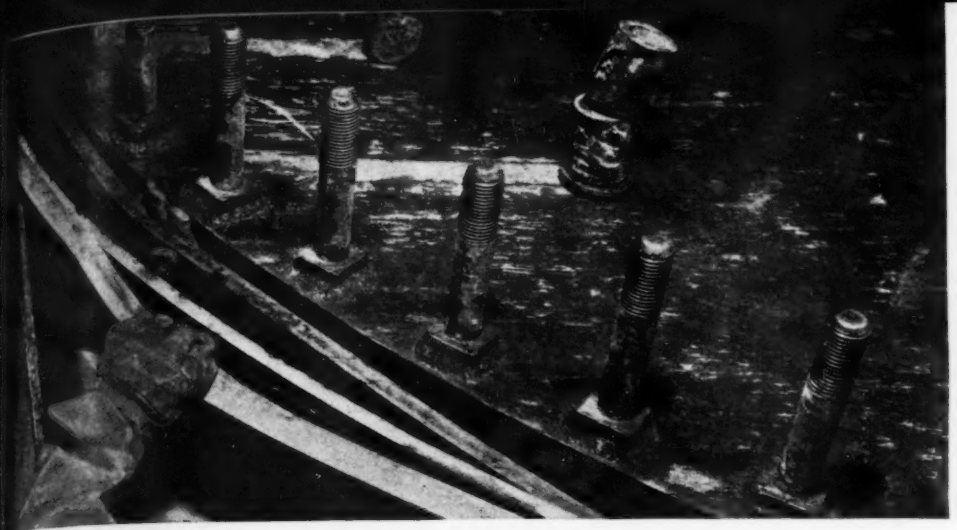
HYDROSTATIC TESTS for Shasta Dam Penstocks

Penstocks for Shasta Dam powerhouse are being welded up in sections 20 ft. long and 15 ft. in diameter. As each section is completed, hydrostatic tests are made at pressures that increase with the thickness of the steel plate used. Plate thicknesses range from ¾ to 2¼ in. and the test pressures range from 182 to 570 psi.

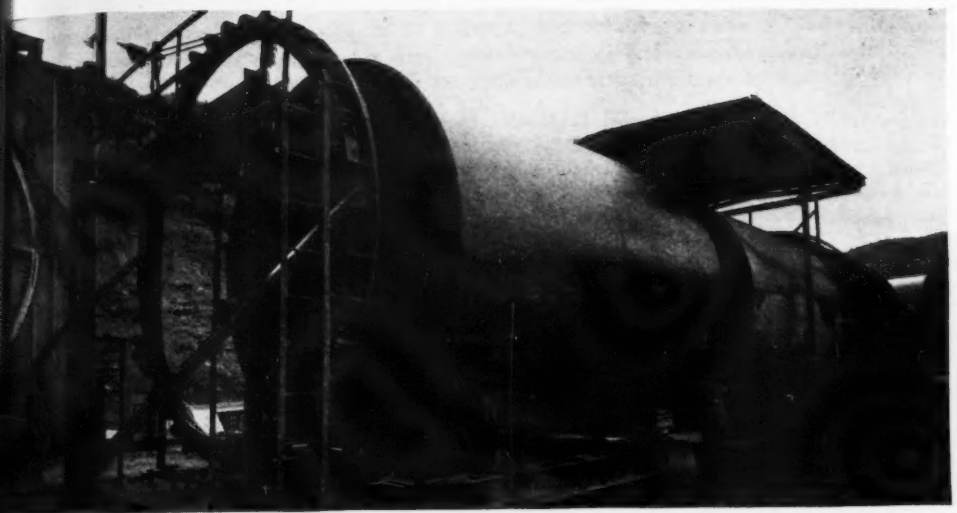
The testing rig includes a mandrel which completely fills the section under test except for a 3-in. annular space. To make tight joints, between pipe section and mandrel, three circular rubber bands are used, so placed that they are held in position by the hydrostatic pressure used in the test. At the rear of the mandrel a projecting rim serves as a shoulder against which to press the section under test, but the joint is made water tight by a cylindrical ring of rubber fitted just inside the inner surface of the pipe section near the rear end. Similarly, at the forward end, a rubber band fits inside the section. The third gasket is fitted around the outer surface of the mandrel at its forward end. All three of these rubber bands are so placed as to project forward beyond the steel slightly. When the movable head comes into position, it shoves the bands along longitudinally just enough to make a firmly seated fit.

The two bands fitted against the inside of the pipe section have a rectangular concave space on the inner face into which a small steel channel fits. This steel member serves as a spring ring to press the rubber against the inner face of the pipe. Round-headed bolts imbedded in the rubber and threaded through holes in the steel channel, fasten steel and rubber together. The third band, that encircles the outer end of the mandrel, is made of a diameter slightly smaller than the mandrel so that it clamps itself into place. Sequence of making the joints is shown in the accompanying pictures.

The main unit penstock system of Shasta Dam consists of five all-welded pipes 15 ft. in diameter with branches to station service units. The pipes are being welded in 20-ft. sections.



Two rubber gaskets and a channel-shaped steel rib (that fits into the inner face of the outer gasket) are here shown at the forward edge of the mandrel. Annular space between mandrel and pipe is 3 in. wide; each gasket is about 1 in. thick.



A section of steel pipe 15 ft. in diameter about to be passed over the mandrel of the testing machine.

Below: When the pressure head is bolted up, not much tension has to be put into the bolts because it is hydraulic pressure against the gaskets that makes the joints water tight. The power-driven tool is used to speed up the operation. This tool is a reversible impact wrench, that is designed for applying and removing nuts up to 1¼ in. in diameter. It is used by the Western Pipe and Steel Co., contractors on Shasta Dam penstocks.

Below: The pipe section has been passed over the mandrel and the ring-shaped head that makes a tight joint is being moved up to engage the bolts projecting from the mandrel.

Engineers and designers to be given lists of scarce materials by WPB

Rosenwald assures The Producers' Council of authoritative information on supplies. Armed services tell of savings of material effected

Designers and construction men who have found it difficult to obtain authoritative information on what materials are scarce and what may safely be specified will soon have several lists to use, Lessing J. Rosenwald, chief of the WPB Bureau of Industrial Conservation, told The Producers' Council of Washington, D. C., last week.

For residence construction, the Feb. 24 revision of the defense housing critical list is available. The War Production Board is completing a critical list for general building, and a similar but more drastic list intended for the guidance of war contractors will soon be released by the Army and Navy Munitions Board. A critical list of highway materials is already being turned over to the states by the Public Roads Administration, and a list covering water and sewer works is being prepared by WPB.

The meeting was the first of a series of some twenty to be held by local clubs of the Producers' Council in an effort to promote conservation of scarce materials in construction.

Rosenwald said that the American Standards Association will soon submit, at his request, recommendations on the use of higher working stresses for steel.

Capt. L. B. Coombs, assistant chief of the Navy's Bureau of Yards and Docks, said that the scarcity of nearly all metals is now so great that there is no assurance that even all direct war needs can be met. In the face of this situation, the Navy has reconciled itself to the use of inferior materials, particularly on temporary construction, and is drafting specifications very broadly so as to permit the use of almost any available material.

Use of some 35,000 wooden roof trusses in the Army's storage depot program, at a saving of 200,000 tons of steel, was presented by Col. R. F. Fowler, chief of the Corps of Engineers Supply Division, as an example of War Department conservation efforts.

The corps, Col. Fowler said, now has more than six billion dollars worth of work on its books, so that even small economies bulk large. Substitution of vitreous china for cast iron in the grease inteceptors used in cantonment mess halls has saved 800 tons of metal. Parrafin-impregnated cotton braid is being used as a substitute for jute in caulking sewer and water lines. Standby water and power facilities and duplicate circuits are being eliminated.

Other speakers were Stephen F. Voorhees, construction adviser to WPB's Production Division, E. B. Black, president of Am. Soc. C. E., D. W. Kimball, president of A.G.C., and F. J. Plimpton, president of the Producers' Council. Richmond H. Shreve, president of the A.I.A. presided.

Iowa refuses tax refund to government contractor

Construction firms engaged in federal government work are not entitled to a refund of the Iowa State tax on motor fuels, according to a recent ruling in the Polk County district court.

Wood Bros. Construction Co. of Omaha, Nebr., had brought suit against the state treasurer for a refund of $9,810 for taxes paid while constructing dikes and other channel control works on the Missouri River.

Speeding the War Effort

America's war effort goes forward at an increasingly faster rate, through many agencies and in many fields. Here are some developments of the past week of special interest to the engineer and constructor:

An order which will limit sales from existing stocks to defense projects granted a high priority for metal windows and eliminates the manufacture of residential type metal windows has been issued by the War Production Board. The board estimated that during 1941 approximately 150,000 tons of metal, almost entirely steel, were used to produce an estimated 6,000,000 to 7,000,000 windows. The limitation order is expected to result in saving from 60,000 to 80,000 tons a year.

The Bonneville Power Administration will save more than 180,000 lb. of copper for construction of transmission lines necessary for war industries, as a result of permission granted by the city of Tacoma for utilization of part of its system in supplying power to Bremerton, Wash. The saving will result from the elimination of 15.7 miles of 115,000-volt transmission line construction between Potlatch and Allyn, Wash., to bring power from the Tacoma Cushman plant to Bremerton. Under the agreement, Bonneville will build a line from Allyn to Bremerton; the line will be supplied with power from the Cushman plant of the Tacoma city system at Allyn, eliminating the necessity of construction of a Bonneville line from Allyn to Potlatch during the emergency. Electric energy from the Tacoma plant will be replaced in the Tacoma system with Columbia river power over Bonneville's Covington-Tacoma transmission system.

Women are entering the war effort through two more fields according to the news last week. The Pennsylvania Department of Highways employed and put to work five women high school graduates as assistants in testing construction materials in its highway materials testing laboratory. At Chicago, the International Harvester Company announced a nationwide program of training farm women and farm girls as tractor and other farm machine operators.

Schools and universities, too, were completing plans for speed-up in the courses they offer for engineers, draftsmen and others needed in the planning phases of the war effort. Consultation with government and industrial officials has led the faculty of the College of Engineering at New York University to adopt a new accelerated war training program. The plan will train junior engineering students for four months service with war industries by May. Under the plan, 38 students who have completed all basic engineering studies will be released about May 15 to work with war industries for four months during the all-out production drive of this spring and summer. The academic program of all undergraduates will be accelerated by the elimination of most regularly scheduled holidays during the academic year. At the University of Iowa, Dean F. M. Dawson, of the College of Engineering, has announced that under a speed-up of the curriculum, an engineering student will be able to graduate in three instead of four years. The University of Kentucky announced a new defense training course to be held twice a week for a 12-week period which will include pencil technique, free-hand lettering, use and care of drawing instruments, orthographic projection and allied projects. Dr. Raymond A. Kent, president of the University of Louisville, Louisville, Ky., announced that the normal four year program consisting of eleven quarters of academic work and four quarters of cooperative employment for civil, electrical, mechanical and chemical engineers has been telescoped to a three year program including ten quarters of academic classes and two quarters of cooperative employment. The program will release two graduating classes in 1943.

Air raid wardens not permitted to tamper with water system operation

New Jersey Defense Council chief says that original instructions will be modified so that only qualified department representative will operate valves in emergencies

Air raid wardens should not be permitted to operate valves and other water system facilities, despite instructions they may have received to the contrary, members of the New Jersey section of the American Water Works Association were told last week by Thomas Dignan, chief of staff of the New Jersey Defense Council.

This statement clarified a moot point for waterworks authorities, many of whom have been approached by civilian defense organizations for distribution maps and tools. In denying such requests heretofore waterworks men have pointed to the folly of having anyone except a qualified water department representative, attempt to take over operation of any part of this vital utility service.

Mr. Dignan stated that any misunderstandings on this score would be clarified and that provision will be made for the appointment of properly trained men—selected by local water department officials—to aid in the operation of valves and other system facilities in an emergency. He reported also that steps have been taken to insure water department representation at each local air raid coordinating center, an apparent deficiency existing in many New Jersey communities.

Mutual aid praised

The meeting of the New Jersey section, which was held in Trenton on March 26, was one of a series of local conferences sponsored by the American Water Works Association to detail the obligations and duties of municipal water departments in expediting the war effort as well as maintaining service during air raid emergencies. Harry Jordan, secretary of the AWWA, extolled the "mutual aid" plan inaugurated in many states whereby the personnel, repair parts and equipment resources of local water departments have been pooled for common use in emergencies. "But it took a war," said Mr. Jordan, "to bring about this systematized, intelligent basis of cooperation."

In Pennsylvania, reported John Murdock, chairman of the Pennsylvania Water Supply Defense Committee, waterworks officials and operators have been pledged to favor war production needs over consumer interests in all matters pertaining to water supply. Mr. Murdock cautioned municipal officials, however, not to issue distribution maps, hydrant keys or system operation information to persons other than authorized water department representatives. Staff members of waterworks systems, he said, should not be permitted to join other civilian defense organizations because in an emergency they will be required to devote their full energies to maintaining water service. In this connection Mr. Murdock urged special training for employees in the operation of valves.

Possibilities of bacterial, chemical and gas poisoning of public water supplies were outlined by Harry A. Faber, research engineer, The Chlorine Institute, Inc., New York. Because of the confidential nature of this information, it is not possible to report the details. The remarks of Maj. John H. Brewster, U. S. Public Health Service representative in charge of the First and Second regional defense areas of the OCD, who stressed the importance of water supply to war production likewise were confidential.

Route chosen for highway to Alaska

Due to war conditions, a route beginning farther inland than either of those originally favored by the Alaskan International Highway Commission has been selected for the Alaska Highway (ENR March 12, p 389 and March 26, p 459). Within the province of British Columbia, the new road will lie to the east of both routes "A" and "B", which were favored by the commission before war was declared. This was done for two reasons, first, to connect the air fields that have been built along the air route to Alaska, and second, to remove as much of the route as possible beyond the range of easy air attack from the coast.

The new road will start from Fort St. John on the Peace River in British Columbia, which has road connections with Edmonton, and will stay east of the mountains until it reaches the Yukon border, from where it will cross through the mountains to Whitehorse. From Whitehorse it will follow route "A" to Big Delta, from which point there is a road inland into Fairbanks and Circle on the Yukon River and a road to the coast at Valdez. South from Edmonton there are good road connections to the highway system of this country at Great Falls, Mont.

On March 27 President Roosevelt sent to the Senate a recommendation that Col. William M. Hoge, now in command of the engineer troops building the pioneer road for the Alaska Highway, be promoted to brigadier general. Construction of the permanent highway is expected to be carried out by the Public Roads Administration as soon as Congress appropriates the necessary funds, estimated at $25,000,000.

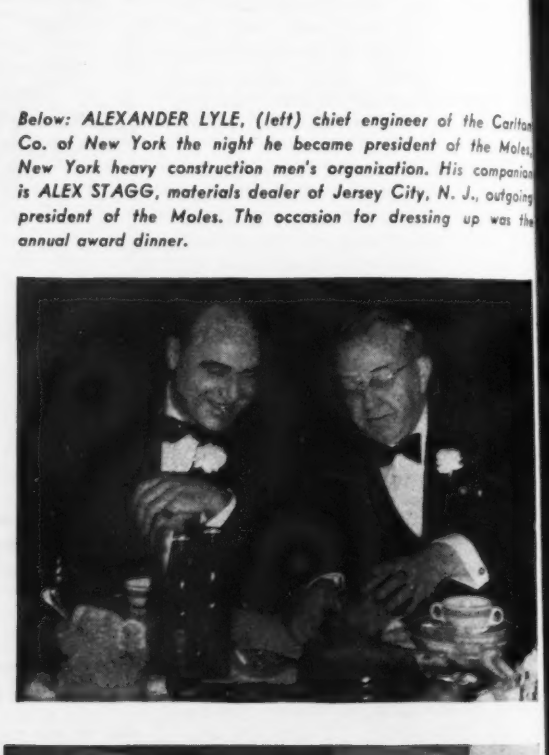
MEN AT WORK

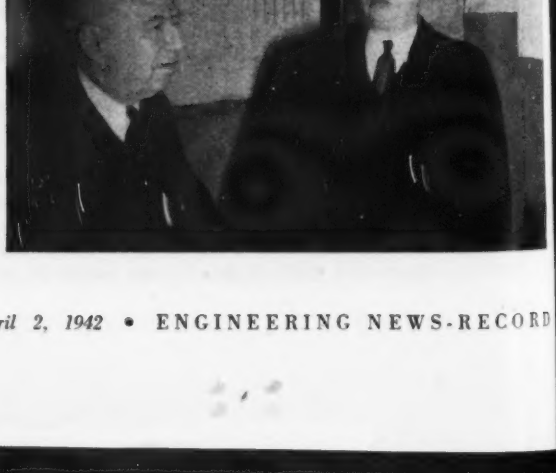
Left: Winter and rapid construction program caused plenty of worry for those in charge of a bomber repair depot, for the U.S. Engineers, including these two men. At left is H. TYNER who is the specialist on the concrete work, while at the right is H. R. BRAYBURN, who was in charge of drainage for an airfield which has three 4,200-ft. long runways and is part of the work.

Left: In the job office for improvements of Pittsburgh's Duquesne Way being constructed for Allegheny County are O. S. SKIPP (left) engineer of surveys; H. J. DICKMAN, (center) newly appointed assistant chief engineer in charge of construction for the county and R. J. MUNCH, resident engineer on the project.

Below: ALEXANDER LYLE, (left) chief engineer of the Carlton Co. of New York the night he became president of the Moles, New York heavy construction men's organization. His companion is ALEX STAGG, materials dealer of Jersey City, N. J., outgoing president of the Moles. The occasion for dressing up was the annual award dinner.

Above: Civil engineers of Rutgers University took time out from the Am. Soc. C.E. meeting held recently in New York to hear a report of happenings "on the banks of the old Raritan" from DEAN PARKER H. DAGGETT (left), and PROF. HARRY LENDALL (center), head of the civil engineering department. CARL H. GRONQUIST (right), with Robinson and Steinman, arranged for the meeting.





Right: E. N. HUNTING (at left) of Hunting, Davis & Dunnells, Inc., engineers of the U.S. Army Supply Depot at Marietta, Pa., and CHARLES BURDETTE of the U.S. Engineer Department, Baltimore district office, were talking about final clean up and possible new work when this picture was taken.

WASHINGTON HIGHLIGHTS

SUBMARINE ATTACKS off the East Coast are reviving interest in a water passage across Florida—because of the desire to find a safe inside route and to replace tanker and freighter losses with barges which may run into difficulties on the outside route. The House rivers and harbors committee has asked the Corps of Engineers to report on a barge canal across Florida following the same general route as the abandoned ship canal project. A year old adverse report on the barge project by the district engineer is now before the Board of Engineers for Rivers and Harbors. A 6-ft. barge route across Florida is now provided by the Okeechobee Canal. The proposed route would save about 400 miles.

NAIL MANUFACTURERS have been authorized by WPB to increase their output over the next four months from last years average of 65,000 tons a month to 72,000. They have been told to sell nails only on orders bearing preference ratings.

A STRONG TREND is working toward stabilization of construction wage rates at existing levels. Within recent weeks building trades unions in Baltimore, Washington, D. C., and St. Louis have indicated they will not ask for increases this year. Similar announcements are impending in other places.

BULL SHOALS and Table Rock Dams on the White River would be restored to the War Department civil functions appropriation under a recommendation of a senate committee. These projects were stricken from the bill in the house. The committee would also increase to $4,750,000 a $1,000,000 fund in the house bill for advance engineering on post-war navigation and flood-projects.

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Halt distribution of Michigan highway maps

Michigan State Highway Commissioner G. Donald Kennedy last week ordered distribution of official state highway department maps discontinued for the duration of the war. He said his action followed receipt of a communication from Maj. Gen. J. M. Cummins, commanding officer of the Sixth Corps Area, in answer to a query made by the department relative to further distribution of maps. General Cummins' communication said that this year's map is exceptionally well detailed and might be of great value to unfriendly agencies if given general distribution.

Only one other state—Pennsylvania—last week took similar action on the distribution of road maps. T. C. Frame, chief engineer of the Pennsylvania Department of Highways, said that the department does not contemplate publication of an official map this year because an ample supply of maps was printed last year and is available at this time. He said none of the changes in roads during the past year were sufficiently drastic to warrant a new map.

Major oil companies, who are the largest distributors of road maps, said in answer to queries that they contemplated no curtailment in their map-making and distributing system, with the exception that new maps may be edited in order to delete locations of army and navy establishments. New maps are now being printed for all states.

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Pit River bridge placed in service

Believed to be the highest double-deck bridge in the world, a structure spanning the Pit River Canyon above the Shasta Dam site in California, was put in service last week when a southbound Southern Pacific freight crossed the structure.

Riding in a special car at the rear of the train was an inspection party including executives of the Southern Pacific Railroad and representatives of the U. S. Bureau of Reclamation. All passenger trains and southbound freight trains previously routed over the railroad's Sacramento Canyon line—soon to be flooded by Shasta Dam water—will be sent over the new route immediately.

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WPB to establish regional offices throughout nation

In another step toward decentralization of War Production Board activities, James S. Knowlson, director of industry operations, has announced plans for the establishment of 13 regional offices throughout the nation. Orville H. Bullitt, Philadelphia; Ernest Kanzler, Detroit, and John C. Virden, Cleveland, are first directors to be appointed. Other headquarters cities will be Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Minneapolis, New York, San Francisco and Seattle.

Under present plans as much authority as possible will be placed in the new regional offices, Knowlson said, and that other field offices now operating in 120 cities will become branch offices, administered by the regional directors. The determination of policies and programs will rest with the divisions of the WPB in Washington, but it is expected that more and more WPB activities will be actually directed in the field.

Public works cut places stress on utility

An order which cut war public works construction, including schools and hospitals, to "bare necessities" (*ENR* Mar. 26, 1942, p. 461), places stress on utility, according to John M. Gallagher, regional representative of the Federal Works Administrator for New England, New York, New Jersey, and Pennsylvania.

In a statement designed to answer numerous queries from contractors, engineers, architects and others, Mr. Gallagher explained that the order, published by Administrator Philip B. Fleming, meant that those features not essential to life, health and welfare of the occupants of a building will be eliminated. "It does not mean that any building will be left incomplete or unfit for usage," Mr. Gallagher said, "but the features usually associated with modern notions of comfort and 'enrichment' will have to go. Manpower and materials are needed for other essentials.

"Where reinforced concrete buildings are erected, it has been the practice to plaster the inside of the outer wall. These will now be left bare but they may be completed at some future date. Interior walls, however, that divide space into rooms, may be built of suitable substitutes for plaster. Exposed water and heating pipes may be unsightly, but large savings will result.

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Chicago revises building code as war measure

Chicago's ancient building code was revised by the city council on March 25 to make possible speedy erection of low-cost housing for workers in war industries. Mayor Edward J. Kelly, in asking the revisions, declared that a serious shortage of low-rent and low-cost houses already exists in the city, and that probably 500,000 more workmen would require housing within the next two years because of war plant expansion.

Changes in the code include: Concrete slab foundation for frame construction, eliminating the basement formerly required; insulation will be required to reduce fuel demands; concrete block foundations may be used; concrete piers permissible as foundations for one-story dwellings; dry wall or plasterboard, or two-coat plaster walls now permitted instead of three-coat plaster formerly required; and gutters and downspouts may be eliminated. All changes conform to FHA minimum requirements. Patrick F. Sullivan, president of the Chicago Building Trades Council, which has long fought any revision of the old code, is reported to have demanded a public hearng on the changes.

MEN AND JOBS

Robert J. Harper, of Camp Hill, Pa., has been appointed district engineer of District 8, at Harrisburg, Pa., by the Pennsylvania Department of Highways. He succeeds the late H. Ray Wertz.

E. V. Lorenz of Lewiston, Idaho, has been named progress engineer for the Kaiser Construction Co. at its new Vancouver, Wash., shipyards.

J. Lowell Henderson, city engineer of Vancouver, Wash., has accepted a temporary leave of absence to take up engineering work in connection with an $18,500,000 defense housing program, at Seattle. **George Minturn,** assistant city engineer, will take charge of the department.

G. R. Boatwright, district WPA engineer at Salem, Ore., since 1935, has resigned to become materials purchasing agent for a contracting firm. He has been succeeded as WPA enginer by **George Hansen.**

George S. Kapp, chief engineer for the Kansas State water resources division and chairman of the committee on civilian defense for the Kansas Section of the American Society of Civil Engineers, has been appointed to the Kansas State Council of Defense.

John Fassbinder, who has been employed by the Iowa Department of Highways for the past 11 years, has resigned to enter private engineering practice at Charles City, Ia.

James A. Cranford, of Jacksonville, Fla., has been named commissioner for Duval County on the Florida Inland Navigation District, to succeed the late George J. Avent.

Wayne Thomas Rye, for 25 years a Kentucky Department of Highways engineer, resigned recently to join a construction company at Maysville, Ky.

L. G. Smith, of Huntsville, Ala., highway engineer in charge of Madison County road work for the past six years, has resigned to accept an engineering position at the Huntsville Arsenal. **Sam Tate,** formerly assistant to Smith, will succeed him.

George E. Murphy, sanitary engineer for the Berson-Orange-Person Tri-County Health Department for the past year, has accepted a similar post with the Army Area Engineers Office at Durham, N. C.

Clarence Millett, computor; **A. Stutenroth,** junior resident engineer; **Robert Cable,** instrument man; **Robert Ritchie,** instrument man; and **Stewart Douglas,** inspector, all employees of the South Dakota State Highway Commission, have resigned to accept positions with the U. S. Engineer Department.

S. E. Sime, Kansas City, Mo., has replaced **C. Y. Johnson** as senior engineer in Nebraska for the Public Roads Administration.

C. A. Wilson, acting secretary of the Wisconsin Registration Board of Architects and Professional Engineers, has been appointed as representative on the National Roster of Scientific and Specialized Personnel.

Earl Longland, draftsman, for the South Dakota State Highway Planning Survey, has resigned to join the U. S. Engineers.

R. T. Needles, former traffic engineer and junior engineer in the city of Akron, Ohio, planning division, has resigned to take a post with the Goodyear Aircraft Corp., Akron.

Charles Black, area engineer with the WPA in South Dakota and prior to that time resident engineer with the South Dakota State Highway Commission, has resigned to join the U. S. Engineer Department.

M. D. Wilson has resigned as city engineer at Akron, Ohio, after 18 years of service, to join the H. C. Nutting Co., Cincinnati, national testing engineering firm. He will be at Texarkana, Tex.

W. Dewoody Dickinson, Little Rock, Ark., civil engineer, has become a candidate for representative from Pulaski County to the state general assembly.

John E. Fanning, division engineer for the Illinois Central Railroad at Waterloo, Ia., has been appointed assistant to the chief engineer, at Chicago. He is succeeded at Waterloo by **N. R. Hill,** formerly supervisor of bridges.

J. R. Clifton, civil engineer of New Holland, Ohio, has joined the U. S. Army with a rank of Captain in the Coast Artillery.

T. C. Donahue, formerly district engineer for Region Six of the Farm Security Administration, has joined the Civil Engineering Corps of the U. S. Navy with the rank of Lieutenant.

Harold L. Lautz is district sanitary engineer for the state board of health of Wisconsin at Rhinelander, succeeding **Herbert A. Anderson,** who became associate sanitary engineer with the Farm Security Administration at Milwaukee, Wis.

Capt. W. C. Atwater has been named area engineer in charge of the construction of a defense plant at Sidney, Nebr.

F. O. Carver, Jr., director of the public relations department for the North Carroline State Highway and Public Works Commission, has resigned to enlist in the U. S. Navy.

Wesley Rabedeaux and **Richard Farrell,** employees of the Stanley Engineering Co., of Muscatine, Ia., have resigned to enlist in the U. S. Engineer Department.

Earl Ramsell, engineering assistant in the finals estimate department of the South Dakota State Highway Commission, has been given a leave of absence following his induction into the army.

H. H. Babcock, city engineer of Rapid City, S. D., has joined the U. S. Engineer Department at Rapid City.

Roger H. Gilman, New York civil engineer and formerly junior economist for the Port of New York Authority, has been commissioned an ensign in the U. S. Navy.

Myer Avedovech, chief engineer for the Quaker Oats Co., will be general superintendent of a defense plant at Grand Island, Nebr.

George R. Schneider, head of the design section for the U. S. Engineer Department at Little Rock, Ark., since 1937, has been appointed chief of the engineering division.

C. C. Carlson, location engineer for the South Dakota State Highway Commission since 1926, has joined the U. S. Engineer Department.

Julian I. Staven, consulting engineer with the Capital Engineering Co. at Pierre, S. D., has resigned to accept a post as assistant construction engineer in charge of inspection with the U. S. Engineer Department, and will be stationed at Rapid City.

Gibb Gilchrist, former Texas highway engineer and now Dean of Engineering at the Texas A. & M. College, has taken a 30-day leave to assist War Production Board officials at Washington, D. C. on highway priority matters.

D. E. Dahlgard, area engineer for the WPA at Aberdeen, S. D., has resigned to join the Boeing Aircraft Co. at Seattle, Wash.

War demands force expansion of water supply systems throughout nation

Survey shows virtually every city seeks means of increasing storage, sources and emergency supplies as war industry demand mounts.

Facing increased demands for water from rapidly expanding war industries, and spurred by the need for providing an adequate supply for all emergencies, municipalities throughout the United States are studying means for supplementing their present water resources.

Many cities suddenly have found themselves "caught short" in the matter of reserves and this, coupled with lack of rainfall, brings them dangerously close to actual shortages. Others, looking ahead to a time when new industries will bring greater population and more industrial demand, also are looking to development of new supplies.

Three considerations are uppermost in the search for additional water. First, is the need to supply plants producing war material with adequate, uninterrupted flow; second, to provide adequate reserves to take up the slack in the event of loss through distribution system breakage from bombing, and third, general health.

At Philadelphia, for example, it has been revealed that the tremendous boost of war production has pushed the city's daily water consumption to more than 330 mgd.—25 to 30 mgd. above normal and perilously close to peak capacity of 400 mgd. Civic leaders have expressed fear that the entire war program there is in danger because of inadequate supply.

To release itself from complete dependence on the city's system, the Philadelphia Navy Yard a year ago completed its own auxiliary supply system, utilizing five artesian wells.

Philadelphia itself depends on a series of pumping stations, some of which were installed in 1903 and are still in use. With granting of high priority ratings for needed materials, the city is now pushing an $18,000,000 rehabilitation program.

Schenectady, N. Y., is confronted with the problem (*ENR*, Mar. 19, p. 445) of demand mounting over the 13 mgd. capacity of its pumping stations. A new pumping plant, capable of handling 30 mgd., and additional groundwater supplies, are being installed.

Memphis, Tenn., found a use for 20 abandoned underground cisterns built between 1860 and 1880 to collect rainwater. Mayor Walter Chandler announced that the cisterns would be placed in good condition and filled from the existing water supply, to act as emergency reservoirs in case of need. The cisterns have a combined capacity of about 40,000 gal.

Miami, Fla., fearing that low water in the Miami River would permit salt water from Biscayne Bay to pollute the groundwater system, is proposing the construction of a temporary barrier dam near Hialeah to insure potable supplies. The city has started negotiations with the Everglades Drainage District—whose canals would be affected by such a dam—over necessary precautions before construction starts. Wilmington, N. C., also faced with a salt water trouble from a surface supply (*ENR*, Feb. 26, p. 314), has undertaken the development of a new source on the Cape Fear River, near Kings Bluff. Pending granting of appropriate priority ratings, the city plans drilling 14 new wells and reworking is now in service.

Foreseeing a demand for more than its 148 mgd. safe yield during the coming summer, Baltimore, Md., found its supply 22 percent below normal last week, due to continuing dry weather, and considered proceeding with plans to tap the Patapsco River at Avalon and pipe water to its filter station at Montebello. Atlanta, Ga., also considered the possibility of demand increasing beyond supply and looked into expansion possibilities (*ENR*, Feb. 19, p. 445).

Baltimore already was involved in a controversy centering on the construction of water mains to a new war industry plant there. Tentatively approved, funds for a part of the construction were lacking until the plant officials offered to advance $93,000 for the work.

In the heart of Texas

Houston, Texas, which has boomed from a medium-sized, aggressive city, into a major metropolis in the past few years, has found itself hampered in plans for improvement by restrictions forbidding insurance of new bonds until a previous waterworks debt has been paid off. Pending approval of a large bond issue and circumvention of legal difficulties, the city is going forward at present only with maintenance and repair of the existing system.

San Antonio and Dallas, Texas, also confronted with "boom" conditions, are moving ahead with extensive improvements to their distribution systems and extensions of the systems to new areas. Neither municipality is planning any immediate increase in supply sources, however.

At Oklahoma City, Okla., a major project to make available a new 40 mgd. supply is already underway. This $7,000,000 improvement, to be described in detail in a forthcoming issue, involves construction of an earth dam, five miles of canal, a 3,500-ft. long siphon and a new treatment and pumping plant.

Tulsa, Okla., too, is going ahead with an improvement program to increase its pumping, filter and force mains facilities by 50 percent, thereby enlarging its present 40 mgd. capacity to a possible 60 mgd.

Northern New Jersey towns were assured of adequate reserves when the state legislature approved an appropriation of $300,000 for interconnection of the Newark and Jersey City systems (*ENR*, Mar. 26, p. 461), and Nassau County, New York, also considered interconnections as a means of coping with emergency needs.

Jacksonville, Fla., officials decided at a special meeting last week to replace pumps that were giving unsatisfactory service in a recently-completed water-pumping station.

In the nation's capital itself, the Army Engineer Corps predicted that by summer water demands will necessitate an increase in pumping capacity of 20 mgd.; this is in addition to the reserve storage in a reservoir now under construction to provide water for Washington and Arlington county in case of drought.

By virtue of unexpectedly heavy rainfall in its vast watershed during March, New York City appeared to be in a comparatively enviable position. Engineers for the Department of Water Supply, Gas & Electricity reported that at the end of the month, reservoir storage was about 166 billion gallons, as compared to 103 billion gallons on March 1. However, since normal storage at this time is about 185 billion gallons, the city will continue pumping water from Long Island groundwater sources until storage increases. Meanwhile, the city's Delaware Aqueduct supply—which will bring an additional 440 mgd. to the municipality, is reported to be about 80 percent complete, although Merriman Dam, which will store water for the system, is only 38 percent complete.

Aqueduct guards put on horseback

The motive power of Los Angeles' aqueduct patrolmen will be 50 horsepower — literally — when present operations of the city purchasing department are completed.

In a move to conserve tires, and save gasoline and general maintenance expenses, the guard has been ordered to switch from automobiles to horses for patrol purposes. About 50 saddle horses will be bought.

Chicago faced an odd complication when it was revealed last week (*ENR*, Mar. 26, p. 460) that waste from expanded war industries had doubled pollution of water entering the city's 68th Street intake on Lake Michigan. Redoubling its efforts to obtain necessary priorities for construction of its 320 mgd. South District filtration plant, the city meanwhile considered means of increasing diversion of lake water to facilitate drainage of the waste into the Illinois waterway before it reached the lake. Obstacle is a 1939 Supreme Court decision which restricts diversion for this purpose to 1,500 cfs.

A group of other large waterworks expansion programs, recently approved as necessary war measures, include: New Britain, Conn., a $750,000 job for main extensions, covering high service reservoir, and laying of a new main and other work; a $330,000 program at East Chicago, Ind., for additions to reservoir facilities and miscellaneous work; a $280,000 program at Flint, Mich., for additional feeder mains, and other work at Sheffield, Ala.; Santa Monica, Cal.; Port Byron, Ill.; Brandenburg, Ky.; Aberdeen, Md.; Beaumont, Miss.; Hawthorne, Nev.; Kaysville and Clearfield, Utah; Swansboro, N. C.; Columbia, S. C.; Rockport and Victoria, Texas.

WPA gets contract work

On March 14, Assistant Federal Works Administrator Baird Snyder, III, acting for Administrator Philip B. Fleming, assigned five war public work projects to WPA for construction, under private contract and without the use of relief labor. This is the first assignment of projects of the community facilities type, under the Lanham Act program, to the Work Projects Administration. By giving the projects the benefit of WPA's existing engineering and technical resources, state as well as national, the assignment will save time in the preliminaries to construction and construction supervision.

The projects for water and sewer facilities are in Santa Monica, Calif., Beaumont, Miss., Swansboro, N. C., Prince William County, Va., and Dublin, Va.

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Order cuts production of metal plastering bases

Curtailment of the production of metal plastering bases and accessories in order to save substantial amounts of steel and zinc was ordered by the War Production Board last week.

The order reduces the metal consumption of larger producers—defined as manufacturers who use 14,000 tons or more of metals during the calendar year 1941—by 50 percent, and smaller producers by 25 percent, with total tonnages used in the calendar year 1940 and 1941 taken as a base. Use of zinc is even more drastically curtailed, larger producers being allowed only 35 percent of tonnages consumed in the base period, and smaller producers, 50 percent. The order covers operations of producers for the period ending June 30 this year.

The order covers all supports and reinforcements, made in whole or in part from metal, used as bases for the application of plastering or stucco construction. Commonly known bases included are metal lath, metal stucco mesh, sheet metal lath, wire lath, wire cloth, wire fabric, together with accessories except for nails. Material commonly known as "chicken wire" is not covered.

Canal adds modernistic note to rural scene

Winding in an S-curve through the foothills east of Madera, Cal., part of the Madera Canal of the Central Valley project adds a note of smooth modernity to an otherwise rural setting. The section above, in which storm water has collected, is 35 ft. wide at the top and 10 ft. deep. The canal ultimately will be 37 miles long and will carry water from Friant Dam to farmlands of the Madera Irrigation District.

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Icy road judged not fault of highway commissioner

On the ground that the state highway commissioner is not an insurer of the safety of travelers on highways, the Connecticut court of common pleas recently handed down a judgment favoring Connecticut Highway Commissioner William J. Cox in a damage suit.

The suit, brought in behalf of Michael DeFronzo, of Hartford, grew out of an automobile accident on the Silas Deane Highway in Rocky Hill in Mar. 1940. DeFronzo, a minor, was injured when the car in which he was riding skidded on a patch of ice and crashed into a state highway truck which was engaged in sanding the road. The suit brought for the child claimed the accident was due to a faulty condition of the road.

The decision, handed down by Judge Abraham S. Bordon, said in part, "... the defendant is not an insurer of the safety of travelers on the highways. There is nothing inherently dangerous in the highway requiring the defendant either to erect a new one or make it absolutely waterproof. It was the duty of the highway commissioner to use reasonable care to make the highway reasonably safe. The fact that the road was being sanded at the time indicated that such care was being demonstrated."

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Bonneville maps added power transmission line

Bonneville Power Administration officials have announced that preliminary mapping, design and survey work is under way for the construction of two 230,000 volt power lines from Grand Coulee Dam to Spokane.

An allocation of $3,399,210 for completion of the lines has been approved. These lines are in addition to the two 115,000 volt lines now nearly completed between Grand Coulee and Spokane. D. L. Marlett, executive assistant to the administrator, explained that the 230,000 volt lines would assure light metal factories in Spokane ample power for their activities.

Testing Window Glass for Concussion Damage

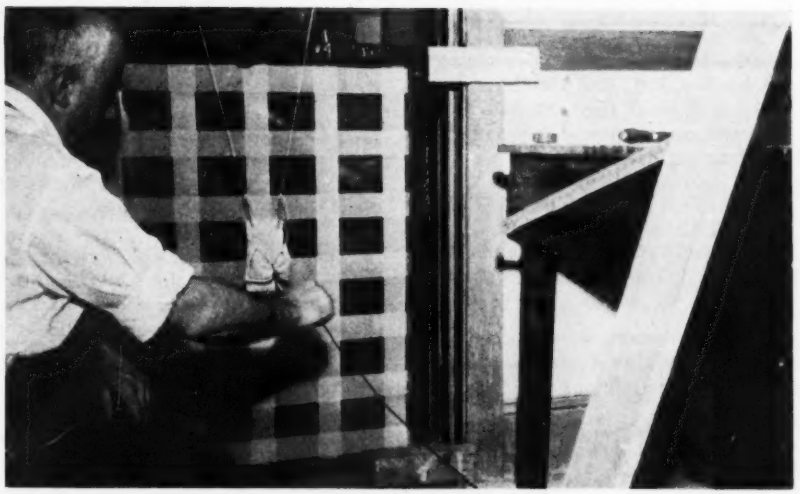
West Coast engineers are being asked to design window protection that will, in the event of heavy explosions nearby, minimize the flying-glass hazard. The San Francisco building department has conducted tests on window glass to which taped and lacquered protection has been applied. Thus far the tests have been made with a bag of shot suspended from supports in the plane of the window sash and allowed to swing against the glass. The shot bag is made to deliver measured blows of increasing intensity (by releasing it at higher and higher levels) until the glass is shattered. Particular care has been taken in each test to observe whether particles of the glass are propelled some distance from the sash by the shattering impact.

It is conceded that in all these tests the blow from the shot bag is more concentrated than the impact on the full area of window glass that would result from nearby detonation of high explosives. A test has therefore been proposed in which a high explosive charge can be detonated (at a safe proving ground) after window sashes have been set up at varying distances, each provided with means for observing the relative distances glass fragments are thrown.

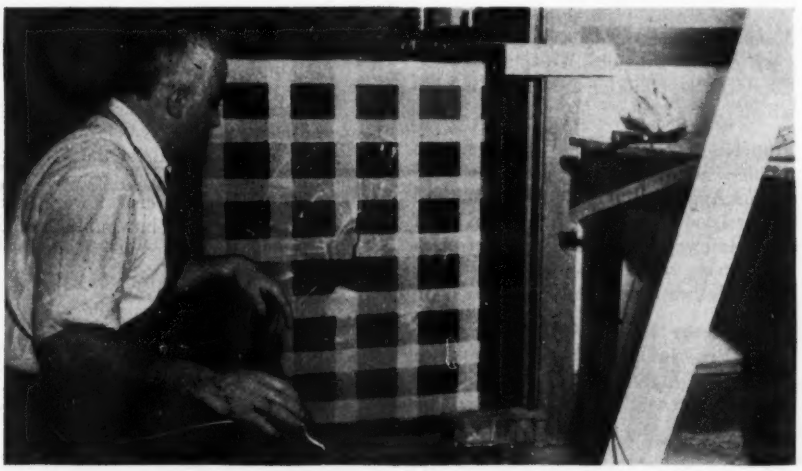
Glass protective measures of several sorts already have been applied to large store windows in downtown San Francisco. With attention to the risk of glass breakage emphasized in this way the city is considering what measure of protection from flying glass should be provided for children in school classrooms. Children are advised to remain in the school rooms in the event of an air raid warning during school hours.

Granted that tape and lacquer provide a considerable measure of protection at low expense against impacts of moderate force, a question has been raised as to whether heavier and more positive means of stopping flying glass fragments are necessary to really safeguard pupils in a school room into which window glass is blasted by concussion.

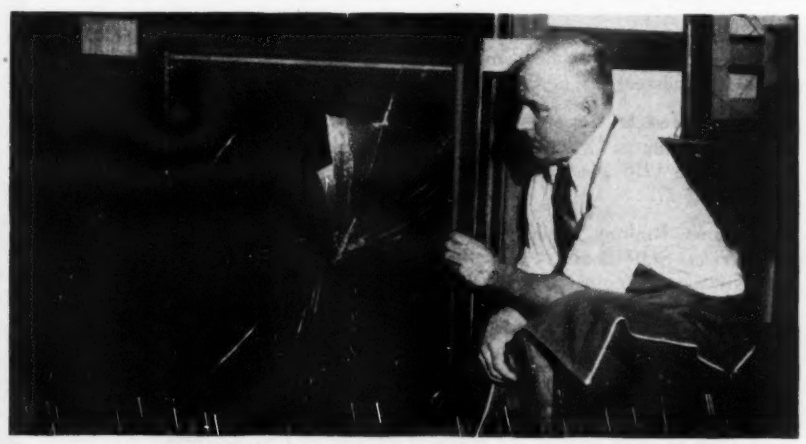
It has been suggested that school buildings should have a ½-in. metal screen fastened inside each window sash, supplemented on the room side of the screen by a quilted curtain (similar to the ordinary mattress pad). The screen would be left in place permanently and the curtain would be quickly rolled down when the air raid warning sounds. The curtain is expected to yield enough so that small glass fragments blasted through the screen would be stopped by the curtain. If the wire mesh is fastened to the window sash without using screen frames, it is estimated that the cost for screen and curtain could be kept below 40 cents per square foot.



A window sash in which the glass has been protected with tape in both directions forming 3x4-in. rectangles, is fastened in a doorway and a bag of shot is suspended, on two cords, so that it can be swung against the glass.



After an impact much heavier than required to break unprotected glass, the shattering here shown resulted. However, small pieces of glass from the unprotected areas were propelled into the room beyond.



In this sash the glass was protected by a lacquer coating that succeeded in holding together even the small fragments after the pane had been shattered by a heavy impact.

OBITUARY

Charles I. Nielsen, 62, civil engineer of Weehawken, N. J., died Mar. 28, at Jersey City. A native of Denmark, Mr. Nielsen had conducted a series of explorations for the Brazilian government, the results of which were used by surveyors for the Trans-Andean Railroad between Argentina and Chile. He came to the United States shortly after completing this work, and was a consulting engineer here until the time of his death.

Robert A. Travers, 69, a retired chief draftsman for the United States Steel Corp., died recently at Gary, Ind.

William Munn, 70, construction engineer of Milton, Mass., died at Newton, Mass., Mar. 26.

Burt R. Weidenkopf, 68, senior engineer of plats and surveys in the city department of engineering at Avon Lake, Ohio, since 1903, died Mar. 25.

Joseph M. Weber, 58, construction engineer at the Koppers Wood Preserving Co., Orrville, Ohio, died Mar. 18 at Massillon.

Francis W. Blackford, 82, railroad builder and construction engineer, died at Los Angeles Mar. 25. Mr. Blackford had assisted in building the Oregon Short Line Railroad and had been chief engineer during construction of the Cerro de Pasco Railway over the Andes in Peru.

Virgil Henry Hewes, 83, civil engineer who retired in 1938 after 12 years with the Federal Light & Traction Co. of New York, died recently.

Sam E. Finley, 70, highway contractor and head of the Finley Construction Co., died Mar. 24 at Atlanta, Ga.

Ronald Harris, 68, London, Ont. civil engineer, died Mar. 17.

C. E. Downing, 56, district engineer for the Mississippi highway department for 12 years, died recently at Oxford, Miss.

Samuel Osgood Miller, 69, professor of civil engineering at Columbia University from 1896 to 1916, died at West Nyack, N. Y., Mar. 27.

Fred Elmer Rightor, member-secretary of the Texas State Board of Registration for Professional Engineers, died recently at Austin. He was 59.

Fred Morley, 86, retired civil engineer and educator, died Mar. 27 at Ann Arbor, Mich. Mr. Morley was professor of civil engineering at Purdue University from 1894 to 1899 and U. S. engineer with the Illinois River Survey from 1892 to 1905, when he retired.

Allen C. Robertson, 69, marine surveyor and engineer, died Mar. 15 in New York.

Henry Thomas Pollard, 65, builder of the Army base in Brooklyn, N. Y., and formerly superintendent for the Kennedy Construction Co., died recently.

Andrew Thomas Brice, 64, engineer in charge of the Bureau of Public Buildings of the Department of Public Works of New York City, died recently.

W. Henry Dippel, 83, who, with the late Samuel Austin laid the foundations for the Austin Co., Cleveland, died Mar. 25. At the time of his retirement, 11 years ago, Mr. Dippel was in charge of the woodworking shop operated by the Austin Co.

Lt. Comm. William P. Tammany, U.S.N., a resident of Lewes, Del., died March 25. He had been a naval inspector for the Fourth Naval District, Philadelphia, and was a graduate in special engineering studies of Columbia University.

Edmond Normand, 42, engineer in charge of development of the Montreal water works, died at Montreal, March 26.

Hugh Donnelly, 76, engineer and mine inspector, died recently at his home in Lisbon, Ohio.

CONTRACTS AND CAPITAL

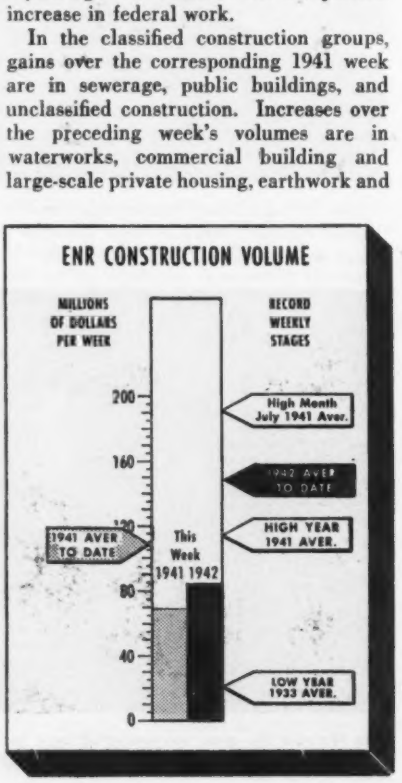
ENGINEERED CONSTRUCTION for the week, $107,136,000 tops the volume for the corresponding 1941 week by 55 percent, but is 40 percent below last week. Public construction is 102 percent over a year ago, but 40 percent under a week ago. Private work is 45 and 38 percent lower, respectively, than last year and last week.

The current week's volume brings 1942 construction to $2,100,224,000, a gain of 37 percent over the total for the 14-week period in 1941. Private construction, $199,928,000, is 51 percent lower than in the period last year, but public work, $1,900,296,000, is 70 percent higher than a year ago as a result of the 124 percent increase in federal work.

In the classified construction groups, gains over the corresponding 1941 week are in sewerage, public buildings, and unclassified construction. Increases over the preceding week's volumes are in waterworks, commercial building and large-scale private housing, earthwork and drainage, and unclassified construction.

New capital for construction purposes for the week totals $994,925,000, a gain of 19 percent over the volume for the week last year. The current week's new financing is made up of $3,460,000 in state and municipal bond sales, $400,000 in corporate security issues, $65,000 in RFC loans for public improvements, $8,000,000 in RFC loans for defense plant construction, and $983,000,000 in federal appropriations for construction.

New construction financing for 1942 to date, $2,414,379,000, is 11 percent above the $2,169,192,000 reported for the corresponding 14-week period a year ago.



CONTRACTS

(Thousands of dollars)

	Week Ending Apr. 3 1941	Mar. 26 1942	Apr. 2 1942
Federal	$21,608	$146,652	$83,034
State & Municipal	25,291	10,620	11,878
Total public	$46,899	$157,272	$94,912
Total private	22,090	19,843	12,224
TOTALS	$68,989	$177,115	$107,136
Cumulative 1942 (14 weeks)			$2,100,224
Cumulative 1941 (14 weeks)			$1,530,237

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1941 14 weeks	1942 14 weeks
NON-FEDERAL	$301,189	$189,424
Corp. Securities	90,943	60,810
State & Mun.	170,712	105,300
U.S.H.A. loans	13,521	.....
R.F.C. loans	26,013	23,314
FEDERAL	$1,868,003	$2,224,955
TOTAL CAPITAL	$2,169,192	$2,414,379

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '42	269.71	129.65
Building Cost	Mar. '42	218.88	118.32
Volume	Feb. '42	507	222

FHA MORTGAGES

	Week Ending Mar. 29 1941	Mar. 21 1942	Mar. 28 1942
Selected for appraisal			
Title II	$34,281	$17,470	$17,613*
Title VI		$20,128	$36,227*

* Subject to revision.

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

PITCH RESERVOIR
WATERBURY, CONNECTICUT

OWNER: Board of Public Works, City of Waterbury, Conn.; Malcolm Pirnie, New York, consulting engineer.

PROJECT: Construction of an earth and concrete masonry dam and appurtenances on Pitch Brook at upper end of existing Morris Reservoir. Dam is located in Town of Morris on West Road, approximately 1¼ miles north of State Highway 109. Dam approximately 1,150 ft. long, and maximum height about 97 feet above bed of Pitch Brook. Major features of contract are construction of compacted earth section, including concrete cut-off wall, stone paving and riprap protecting blanket on upstream face, and rock fill and drainage system on downstream portion; construction of concrete masonry section of dam; concrete conduit through dam; spillway channel in rock cut; drain gate chamber, service gate chamber and house; grubbing and stripping of dam and borrow pit areas; and miscellaneous items, including roads, water level and flow recorders, etc.

CONDITIONS: Contractor to furnish all materials and complete work in 300 calendar days. Rail and highway transportation facilities available. Wage rates specified are: skilled labor, $1.00 to $1.80 per hr.; semi-skilled, 75c. to $1.00; and common, 85c.

BIDS: Eight bids were opened December 23, 1941, ranging from the contract low of $691,375 to $1,073,545.

LIST OF BIDDERS:

1. L. G. Defelice & Son, Inc., New Haven, Conn. (contract) $691,375
2. Maguire & Dugan, Inc., and Morris E. Lipsett, St. Albans, N. Y. 723,593
3. Peter Mitchell, Inc., Greenwich, Conn 837,440
4. B. Perini & Sons, Inc., Framingham, Mass. 863,919
5. John Arborio, Inc., Poughkeepsie, N. Y. 889,500
6. D. V. Frione & Co., Inc., New Haven, Conn 914,684
7. George M. Brewster & Son, Inc., Bogota, N. J. 985,305
8. The N. D. Maselli Corp., Bloomfield, Conn 1,073,545

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Control of water during constr.	L.S.	$17,532.50	$10,000.00	$15,900.00
2. Grubbing	150 ac.	50.00	150.00	200.00
3. Stripping	50 ac.	400.00	600.00	600.00
4. Earth excavation, class A.	55,000 c.y.	.85	.85	.65
5. Earth excavation, class B.	3,000 c.y.	3.00	1.25	1.00
6. Earth excavation, roadways	4,000 c.y.	.85	.85	1.00
7. Overhaul of excavated matl.	100,000 s.y.	.01	.005	.01
8. Rock excavation	15,000 c.y.	.85	5.70	4.00
9. Compacted embankment, class A.	150,000 c.y.	.40	.35	.64
10. Compacted embankment, class B.	160,000 c.y.	.40	.35	.64
11. Compacted embankment, class C.	25,000 c.y.	.40	.50	.60
12. Place topsoil or loam	40,000 c.y.	.60	.70	.95
13. Grassing	15 ac.	300.00	150.00	200.00
14. Sodding	3,500 s.y.	1.00	.45	.90
15. Grout holes	3,500 l.f.	.75	1.00	1.00
16. Grout pipes	500 l.f.	1.25	1.00	1.00
17. Grouting	100 c.y.	25.00	8.00	27.00
18. Rock embankment	15,000 c.y.	2.00	2.00	1.00
19. Graded stone and gravel for drains	350 c.y.	3.25	4.00	5.00
20. Cr. stone base for riprap	3,500 c.y.	3.25	4.00	4.00
21. Riprap	6,000 c.y.	3.00	3.50	1.50
22. Stone paving	5,000 s.y.	5.50	4.00	5.00
23. Gravel road surfacing	3,800 c.y.	1.25	1.75	1.50
24. Dry stone walls	600 c.y.	1.00	5.00	4.00
25. Rubble masonry	150 c.y.	30.00	12.00	20.00
26. Cement	16,600 bbl.	2.40	2.60	3.30
27. Class A concrete	5,000 c.y.	16.00	11.50	16.00
28. Class B concrete	7,000 c.y.	14.00	11.50	14.50
29. Class C concrete	200 c.y.	12.00	7.00	11.50
30. Steel reinforcement	70,000 lb.	.06	.06	.07
31. 72-in. precast conc. pipe	410 l.f.	32.50	50.00	40.00
32. Cast iron pipe, bell and spigot	25 ton	200.00	135.00	150.00
33. Cast iron pipe, b. & s., spec.	6 ton	400.00	200.00	250.00
34. Cast iron pipe, flanged specials	30 ton	500.00	275.00	250.00
35. Valves and sluice gates	L.S.	10,000.00	11,200.00	11,000.00
36. Cylindrical screens	L.S.	8,000.00	7,300.00	8,000.00
37. Copper plates for expan. joints	325 lb.	1.50	.60	1.00
38. Tile drains	570 l.f.	.75	.90	1.50
39. Pipe railing	L.S.	1,500.00	1,600.00	1,680.00
40. Misc. iron and steel work	25,000 lb.	.30	.22	.15
41. Pipe float wells	L.S.	500.00	750.00	2,200.00
42. Changes in Morris Gate House	L.S.	2,500.00	3,200.00	2,000.00
43. Concrete culvert pipe	500 l.f.	2.50	1.75	2.50
44. Flow recorder at Outlet of Shepaug	L.S.	750.00	800.00	1,500.00
45. Water level recorder at Wigwam	L.S.	750.00	700.00	1,500.00
46. Superstructures	L.S.	6,000.00	9,000.00	7,000.00
47. Engr. office and test laboratory	L.S.	2,500.00	2,400.00	2,500.00
48. Fed. engr. office and project signs	L.S.	1,500.00	1,600.00	1,500.00

GARAGE, SHOP BUILDINGS, RESIDENCES
ANDERSON RANCH DAM

OWNER: Bureau of Reclamation, Boise Project, Idaho.

PROJECT: Construction of combined garage and shop building, two six-room residences and nine four-room residences at the Government camp at Anderson Ranch Dam, Boise Project, Idaho. Camp site located along South Fork of Boise River, about 20 miles northeast of Mountain Home, Idaho.

CONDITIONS: Government to furnish cement; contractor to furnish all other materials and complete work in 150 calendar days. Rail transportation facilities available to Mountain Home, highway from there to dam site. Wage rates are: skilled labor, $1.12½ to $1.50 per hr.; semi-skilled, 75c. to $1.00; and common, 65c.

BIDS: Nine bids were opened February 24, 1942, ranging from the low of $66,579 to $104,722 for all schedules combined.

LIST OF BIDDERS:

1. R. D. Merrill Constr. Co., Helena, Mont. (low bidder) $66,579
2. Kloepfer & Cahoon, Boise, Idaho 71,330
3. Felix A. Plastino, Jerome, Idaho 71,953
4. Wade Bros. Co., Ogden, Utah 74,984
5. A. Ritchie & Co., Baker, Ore. 77,495
6. J. H. Wise & Son, Boise, Idaho 81,031
7. Vernon C. Tolboe, Provo, Utah 83,757
8. Whelchel, Park & Bunn, Caldwell, Idaho 92,178
9. S. C. Giles, Stockton, Calif. 104,722

Schedule No. 1

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Excavation, common	230 c. y.	$0.75	$0.70	$1.00
2. Excavation, rock	5 c. y.	5.00	10.00	5.00
3. Concrete in foundations	30 c. y.	7.50	10.00	14.00
4. Concrete in floors	55 c. y.	8.00	7.00	16.00
5. Combined garage and shop bldg., with conc. walls and weathered-black roof: 3 garage bays, 1 shop room	L. S.	6,531.85	4,946.00	5,912.50

Schedule No. 2

6. Excavation, common	1,800 c. y.	$0.75	$0.70	$1.00
7. Excavation, rock	10 c. y.	5.00	10.00	5.00
8. Concrete in foundations	150 c. y.	7.50	7.50	14.00
9. Concrete in floors	45 c. y.	8.00	7.00	16.00
10. Constr. 1 type 4 six-room residence, finished: wall shingles on outside walls: fire-place: dark-red roof	L. S.	5,575.00	6,500.00	5,800.00
11. Constr. 1 type 4 six-room residence, 4 rooms finished: Wilshire siding on outer walls: fireplace: olive-green roof	L. S.	5,575.00	6,200.00	5,800.00
12. Constr. 2 type 7 four-room residences, finished attic and fireplace: 1 with Wilshire siding and olive-green roof: other with wall shingles and weathered-black roof	L. S.	9,440.00	11,932.00	11,450.00
13. Constr. 1 type 7 four-room res., finished attic: wall shingles outside: dark-red roof: no fireplace	L. S.	4,295.00	5,766.00	5,560.00

Schedule No. 3

14. Excavation, common	1,200 c. y.	$0.75	$0.70	$1.00
15. Excavation, rock	10 c. y.	5.00	10.00	5.00
16. Concrete in foundation	150 c. y.	7.50	7.50	14.00
17. Concrete in floors	30 c. y.	8.00	7.00	16.00
18. Constr. 3 type 8-A, four-room residences, plywood siding: one with olive-green, one with dark-red, and one with weathered-black roof	L. S.	15,400.00	15,900.00	15,525.00
19. Constr 3 type 11, four-room res., each with separate garage: one Wilshire and vertical siding, olive-green roof: one as above with dark-red roof: one with wall shingles and vertical siding and weathered-blk. roof	L. S.	13,700.00	14,115.00	11,850.00

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, Manager *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

Location of ENR Correspondents

Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Named in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges, Grade Cross'gs
Streets & Roads
Earthwork, Waterways
Unclassified
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads):

BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Note: To comply with censorship requirements, addresses on some reports are being generalized. Data which would reveal the purpose of the improvements and the size are withheld. The name of contractor and general area are reported.

WATER SUPPLY

PROPOSED WORK

Calif., Napa—Bond election in May to finance purchase Conn Valley site as source water supply.

Colo., Colorado Springs—Water treatment plant. $350,000. Burton Lowther, Colorado Bldg., Denver, engr.

★**Ga., Atlanta**—R. Le Crow, mayor, making surveys exten. water sys. $1,000,000.

Ia., Webster City—A. K. Westervelt, city clk., water softening plant, piping, etc. $25,000.

Kan., Kansas City—Wyandotte Twp. water Bd., R.F.D. 1, placing 4,600 ft. 6 in. c.i. water line from Edwardsville to Lake of the Forest, 5 mi. 4 in. pipeline exten. $79,619. Will apply to WPA. E. I. Meyers, Law Bldg., Kansas City, Mo., engr.

Mass., Milton—Town, C. S. Pierce, moderator, Town Hall, water construction, maintenance. $164,229.

†**N. H., Rye**—School District water supply sys., incl. standpipe, gravel packed wells, pump. sta., Docket NH 27-901. $185,000. **DPW.** H. E. Bailey, 177 State St., Boston, engr..

N. M., Albuquerque—University of New Mexico, J. F. Zimmerman, pres., water plant. $40,000.

O., Lima—12 in. water line. $55,000.

Tenn., Chattanooga—City Water Co., A. F. Porzellus, mgr., 24 in. rein.-con. water line from Citico Pump. Sta. to Vine and Palmetto Sts. $50,000.

★**Tex., Amarillo**—City, c/o A. P. Hancock, mgr., Amarillo, 6 mi. 30 and 20 in. c.i. pipeline, drilling 6 wells, etc. $1,300,000. Freese & Nichols, Capps Bldg., Fort Worth, engrs.

★†**Tex., Hooks**—City, c/o B. Fort, WW and sewers, Tex. 41-384. $960,000. **DPW.** Rollins & Forrest, Praetorian Bldg., Dallas, engrs. CD 3/18—ENR 3/26.

Tex., Houston—Harris County Fresh Water Dist. 10, Houston, water supply, distr. sys. $25,000. Ajax Eng. Co., 603 S St., Baytown, engr.

†**Tex., Houston**—U. S. Eng., Federal Bldg., Galveston, rejected bids Mar. 11, 500,000 gal. elevated water tank, appurtenances, near here. $60,000. Will readvertise. CD 3/18—ENR 3/26 under LB.

Utah, Mt. Pleasant—H. P. Hansen, city clk., imprv., exten. water and power sys. $33,000.

†**Wash., Bremerton**—City, bids soon 2 reservoirs, 24 in. supply line pump. equip., well facilities, reconstructing mains. Docket 45-165. $417,000. **DPW.** CD 1/30—ENR 2/5.

B. C., Vernon—Municipality of Coldstream, bids soon imprv. WW sys. $75,000.

N. B., Devon—Canadian National Rys., C. B. Brown, ch. engr., 360 McGill St., Montreal, Que., water supply to round house and railway yard. $15,000.

N. S., New Glasgow—Enlarging water supply sys. $15,000. J. D. Grant, Town Hall, engr.

Ont., Goderich—E. D. Brown, mayor, filtration plant, addnl. mains. $25,000.

BIDS ASKED

Bids Asked After March 25

Ill., Normal—R. D. Marsh, mayor, water supply sys. addns., water softening plant, pumps, pumphouse, well, well house, etc. $100,000. Greeley & Hansen, 6 N. Michigan Ave., Chicago, engrs. CD 3/18—ENR 3/26.

Bids Asked April 7

S. C. Darlington—J. W. Cathran, executive dir. Darlington Housing Auth., City Hall, wells for 25, 35 or 45 housing units, Project SC 5-1. C. Hardy Oliver, 1246 Main St., Columbia, archt.

Bids Asked April 8

†**Ark., Hope**—A Graves, mayor, imprv. WW. $65,000, sewers $18,000. CD 1/30—ENR 2/5.

†**Ky., Vine Grove**—City, c/o E. H. Cox, town clk., water treatment plant, elevated storage tank, equip., Docket Ky. 15-104. $28,500 **DPW.** M. L. Miller, 312 Tyler Bldg., Louisville, engr. CD 11/3—ENR 11/6.

Bids Asked April 10

†**Tex., Burkburnett**—City, WW extens., imprvs., Docket Tex. 41-361. $26,445. **DPW.** J. E. Ward, Harvey-Snider Bldg., Witchita Falls, engrs. CD 2/2—ENR 2/5.

Bids Asked April 13

Conn., Hartford—Bd. Contr. & Supply at Executive Office Metropolitan Dist., Municipal Bldg., 550 Main St., pipe shaft and tunnel at railroad tunnel wall, Morgan St., Contr. 78. R. Dillon, clk.

Bids Asked April 15

†**N. Y., Schenectady**—Contr. and Supply Com. City Hall, Jay St., 9 gravel packed type wells, etc., N. Y., 30-141. **DPW.** M. Pirnie, 25 W. 43 St., New York, engr. S. Etkin, city clk., adv. ENR 4/2. CD 2/27—ENR 3/5.

†**Tex., La Marque** — Galveston Co. Water & Imprvt. Dist. 3, B. Inselman, pres., WW sys., Tex. 41-265. $140,000. **DPW.** Bids 3/16 rejected. J. J. Rady, Majestic Bldg., Fort Worth, engr. CD 3/25 under LB.

Bids Asked About April 19

†**Ala., Sheffield**—City, watermain exten., Docket Ala. 1-198. $32,000. **DPW.** J. W. Goodwin Eng. Co., Martin Bldg., Birmingham, engr. CD 2/27—ENR 3/6.

LOW BIDDERS

Calif., San Francisco—City and San Francisco Co., Mar. 24, laying 44 in. steel cross-town discharge main, Spec. 310-C, from Pacific Pipeline Constr. Co., Latham Sq. Bldg. $95,391. CD 3/17.

†**Calif., Vallejo**—City, Mar. 24, distr. lines for water sys., Calif. 4-126, Unit 3, Contr. 1, Bid 6-RD-41, and 20 in. watermain, Calif. 4-126-Unit 6, Contr. 1, Bid 6-RD-40, from Lowrie Paving Co., 1540 16 St., San Francisco, $51,806 and $44,969 respectively. **DPW.**

†**La., Oakdale**—L. A. Ford, mayor Pro-Tem. WW, sewers, Docket La. 16-103, Contr. 1, from M. Mitchell & Son, 737 S. Prieur St., New Orleans, $84,627, Contr. 2, from Barnett Brezner Alexandria, $104,260. Est. $200,000. **DPW.**

†**Mass., Fall River**—City, Watuppa Water Bd., City Hall, Mar. 18, 42 in. water line, Mass. 19-101, from I. Capaldi & Sons, Inc., 278 Silver Spring St., Providence, R. I. $292,353. **DPW.** CD 3/10—ENR 3/12.

N. J., Point Pleasant—Boro, 1 story, brick pump. sta., 600 ft. 8 in. c.i. watermains, deep well, etc., from Frank Nero & Son, 250 Mechanic St., Red Bank, $17,522. H. O. Uhden Boro Hall, engr.

†**Tex., Brownwood**—Brown Co. Water Imprvt. Dist. 1, C. Y. Early, pres., water treatment plant, drainage along supply canal, etc. Contr. 2, Docket Tex. 41-143, from H. Newton Graham, approx. $20,000. CD 2/6—ENR 3/5.

CONTRACTS AWARDED

Ill., Pana—Enlarging water reservoir to hold 700 m.g. **WPA.** $175,000. Approved $61,000 bond issue.

†**Ia., Danville**—Town, water and sewerage sys., Ia. 13-102, to Dan Christensen Constr. Co., 417 1st Ave. S.E., Cedar Rapids, $102,984. Est. $120,300. **DPW.** Bids 3/6. CD 2/3—ENR 2/5.

★**Kan., Kansas City**—Prairie Twp. Water Bd. c/o E. I. Meyers, Law Bldg., Kansas City, Mo., placing 30 mi. 4 and 6 in. water line extens., incl. area around Wyandotte County Lake and portions Leavenworth County, **WPA,** $549,386. CD 6/18—ENR 6/26.

★**Md., Towson**—Comrs. Baltimore Co., installing 37,000 lin. ft. 36 in. watermains, etc., to Ligon & Ligon, 3310 Ridgewood Ave., Baltimore, $729,265. Bids 3/16. CD 3/23—ENR 3/26 under LB.

Mass., Winchendon—Water Dpt., Town Hall, dam, small reservoir. Owner builds. $15,000.

Mich., Inkster—21,940 lin. ft. 6- to 12-in. watermains, etc., to Maurice Claerhout, 5237 Alter Rd., Detroit, $61,244. Bids 3/14. CD 3/5.

N. Y., New York—Dpt. Water Supply, Municipal Bldg., concrete retaining wall, fence, store room, miscellaneous imprvs. Jerome Park Reservoir. **WPA.** $52,570. W. W. Johnston, 70 Columbus Ave., New York, dir. Div. Operations.

O., Xenia—M. C. Smith, city mgr., well, pump. equip., pump house, to Layne Ohio Co., 1100 W. Town St., Columbus, $15,134. Est. $15,000. Awarded 3/21.

Pa., Erie—Bureau Water, 701 French St., WW imprvs., repacements, own forces. $100,000. A. N. Aitkin, city engr. CD 2/17—ENR 2/19.

Pa., Sharon—1760 ft. 6 in. watermains, hydrants, etc. South Dock St. between Bank and Wayne Sts., to Shenango Valley Water Co., Sharon, $15,000. G. Nichols, city engr.

S. C., Union—Reservoir dam, to D. M. Rickenbaker, Box 404, Union, $20,000. The Harwood Beebe Co., 208 Montgomery Bldg., Spartanburg, engrs.

†**Va., Norfolk**—Dpt. P. Wks., City Hall, 9,880 ft. 30 in. c.i. watermain to connect Lake Prince Reservoir with WW exten. in Norfolk, Docket VA44-101, to A. G. Pinkston & Co., Monticello Arcade, Portsmouth, $40,000. **DPW.**

†**Wis., Sparta**—U. S. Eng., Federa Bldg., Milwaukee, 12 wells, to S. B. Geiger Co., 37 West Van Buren St., Chicago, Ill. $26,000. CD 3/10—ENR 3/12.

Ont., Dresden—H. McKimm, mayor, domestic water supply sys., to G. R. Simpson & Sons, R.R. 5. Est. $15,000. CD 1/2—ENR 1/9.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Calif., Los Angeles—Vitr. clay sanitary sewers Hatteras St. and Camelia Ave. Sewer Dist. $31,643. L. Aldrich, City Hall, engr.

★†**Mass., Hingham**—Bethlehem Steel Shipbuilding Corp., Hingham, sewage treatment sys., sewers, standpipe, 6 pump. stations. $800,000. Federally financed. H. E. Bailey, 177 State So., Boston, engr.